

CT XML File Validation with xpems.exe

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Attached xpems.exe is a simple XML syntax and data validation tool developed by CDC based on an open source program created by Joe Miguel.

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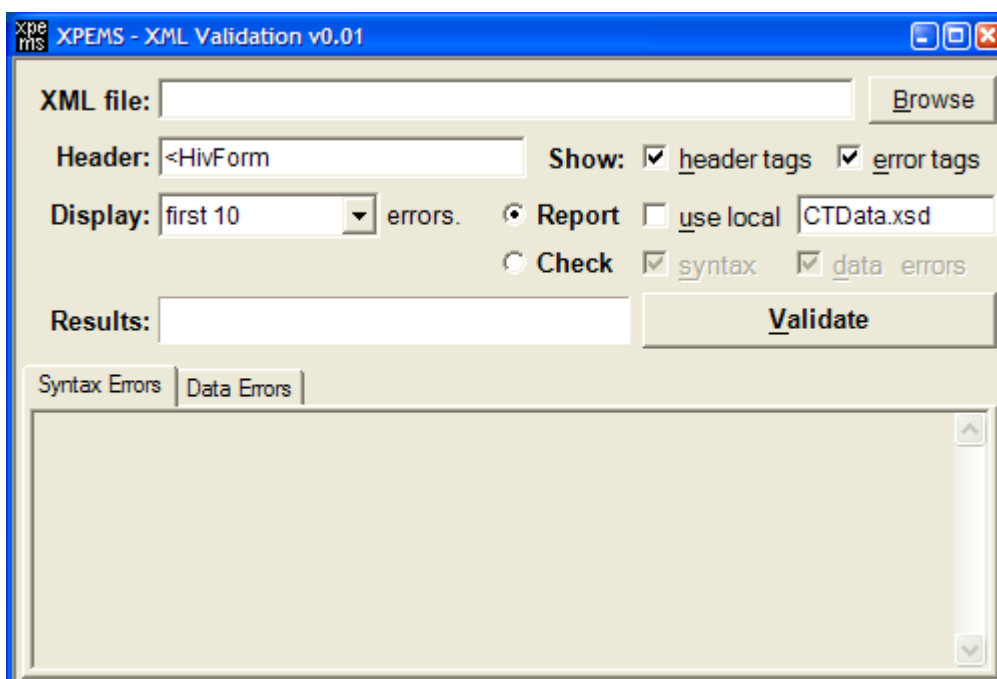


C:\XPEMS\
XPEMS-001.zip

How to extract xpems.exe

1. double click on the "C:\XPEMS\xpems-001.zip" icon above
2. extract all the files in xpems-001.zip to a folder on your local drive
3. rename xpems.rename2exe to xpems.exe
4. double click on xpems.exe to run the program

Note: you can also drag and drop the XML file to be validated on xpems.exe to start the program



How to configure xpems.exe

1. XML file edit

- Enter the XML filename to be validated directly into this edit box or click on "Browse" to select a file.
- You can also drag the XML file and drop it on the application.

2. Header edit

- Specify the header tag in the records that can be used to uniquely identify each record in the XML file.
- Since the unique record identifier "formId" is an attribute of HivForm tag, "<HivForm" has been set as the default value.
- This feature is only applicable to XML files that are "line delimited" (each XML tag is on its own line). Xpems.exe will automatically turn off this feature if the XML file to be validated does not have a linefeed after each tag.

3. Show header tags checkbox

- Check this option to display the corresponding XML header tag (specified in "Header" edit) for each error or warning found in the XML file.
- This feature is only applicable to XML files that are "line delimited." Xpems.exe will automatically turn off this feature if the XML file to be validated does not have a linefeed after each tag.

4. Show error tags checkbox

- Check this option to display the corresponding XML tag that caused each error or warning.
- This feature is only applicable to XML files that are "line delimited." Xpems.exe will automatically turn off this feature if the XML file to be validated does not have a linefeed after each tag.

5. Display xxx errors dropdown

- Select the number of errors to be displayed. Xpems.exe will stop syntax and/or data validation after specified xxx errors are found.
- Select "ALL" to validate the entire XML file and display all errors. This option may take minutes if the file is large and has a lot of errors or warnings.

6. Report radio button

- Select this option to run xpems.exe in "Report" mode.
- "Report" mode:
 - a) XML syntax is validated first.
 - b) If there are syntax errors, a syntax error report is created and validation stopped.

- c) Data is validated if there are no syntax errors.
- d) If there are data errors, a data error report is created and validation stopped.
- e) If there are no syntax or data errors, a summary report is created.

7. **Use Local** checkbox and edit

- Check this option to use a local, alternate XSD schema file – instead of using the schema specified inside the XML file that is to be validated.
- CTDData.xsd has been set as the default schema file. Change the value in the edit to use other schema files.

8. **Check** radio button

- Select this option to run xpems.exe in "Check" mode.
- "Check" mode:
 - a) Use "syntax" or "data" checkbox to specify validation options
 - b) No report files will be created.

9. **syntax** checkbox – select this option to check for XML syntax errors

10. **data** checkbox – select this option to check for data errors in the XML file

11. **Results** label – displays validation results and the time xpem.exe took to complete the validation

12. **Validate** button – click this button to begin the validation of selected XML file

13. **Syntax Errors** tab – displays syntax errors found in the XML file

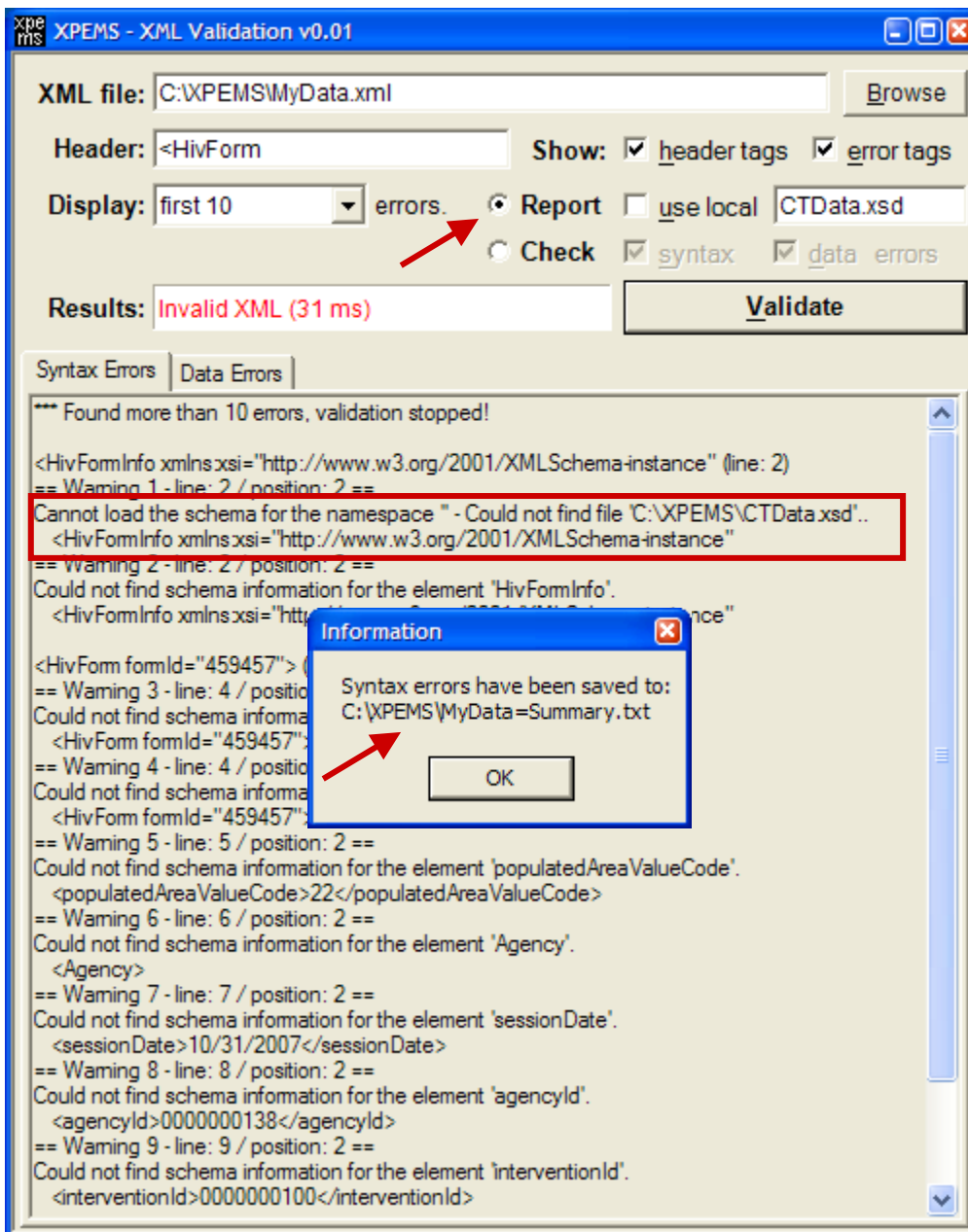
14. **Data Errors** tab – displays data errors found in the XML file

Missing XSD File

Make sure the XSD file is in the correct folder before validating the XML files.

Following example shows that CTData.xsd is not in the folder as described in the XML file. For this particular example, place CTData.xsd in the "C:\XPEMS" folder to resolve the issue.

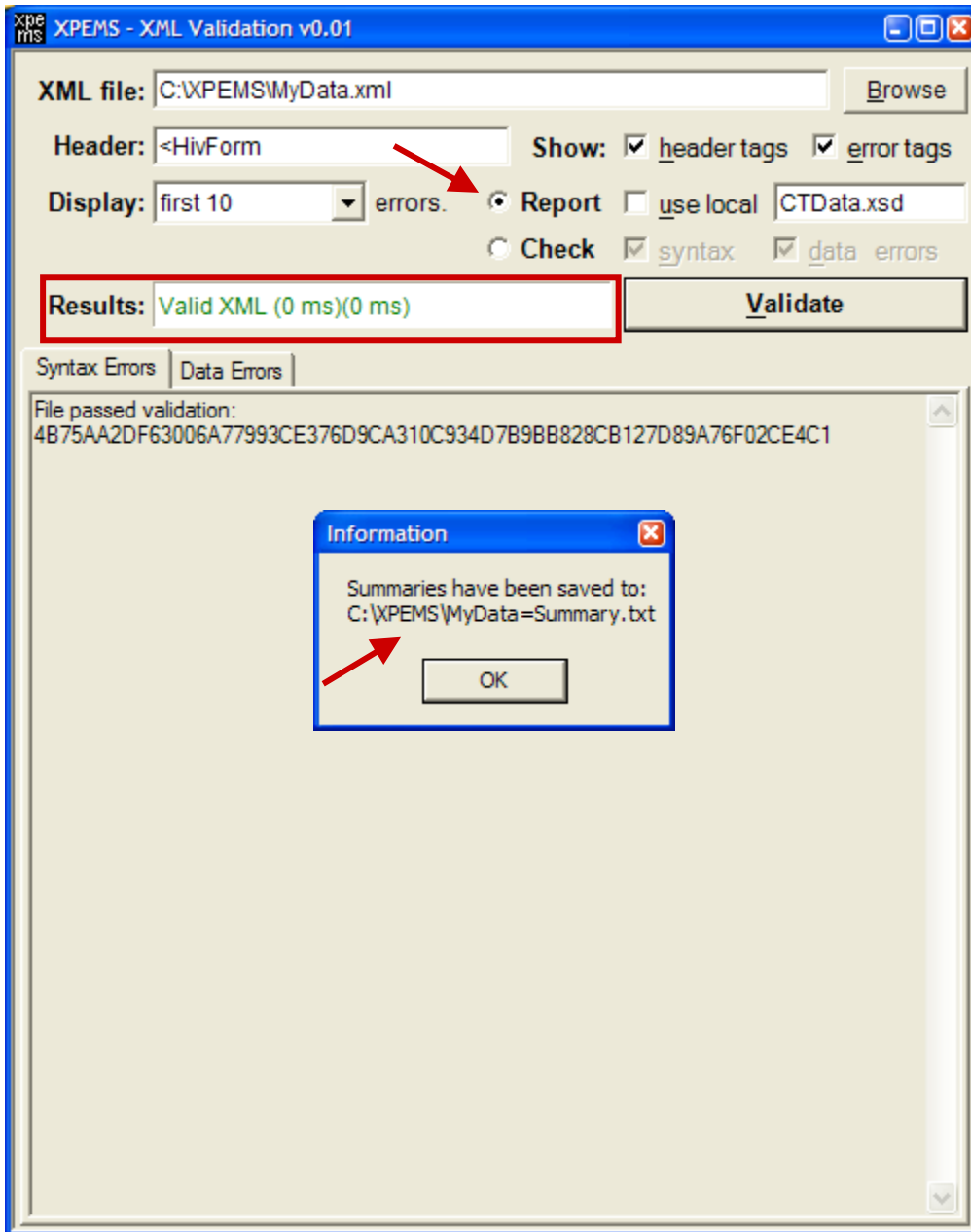
Note: since the program is running in "Report" mode, a syntax errors report will be created.



Valid XML Files

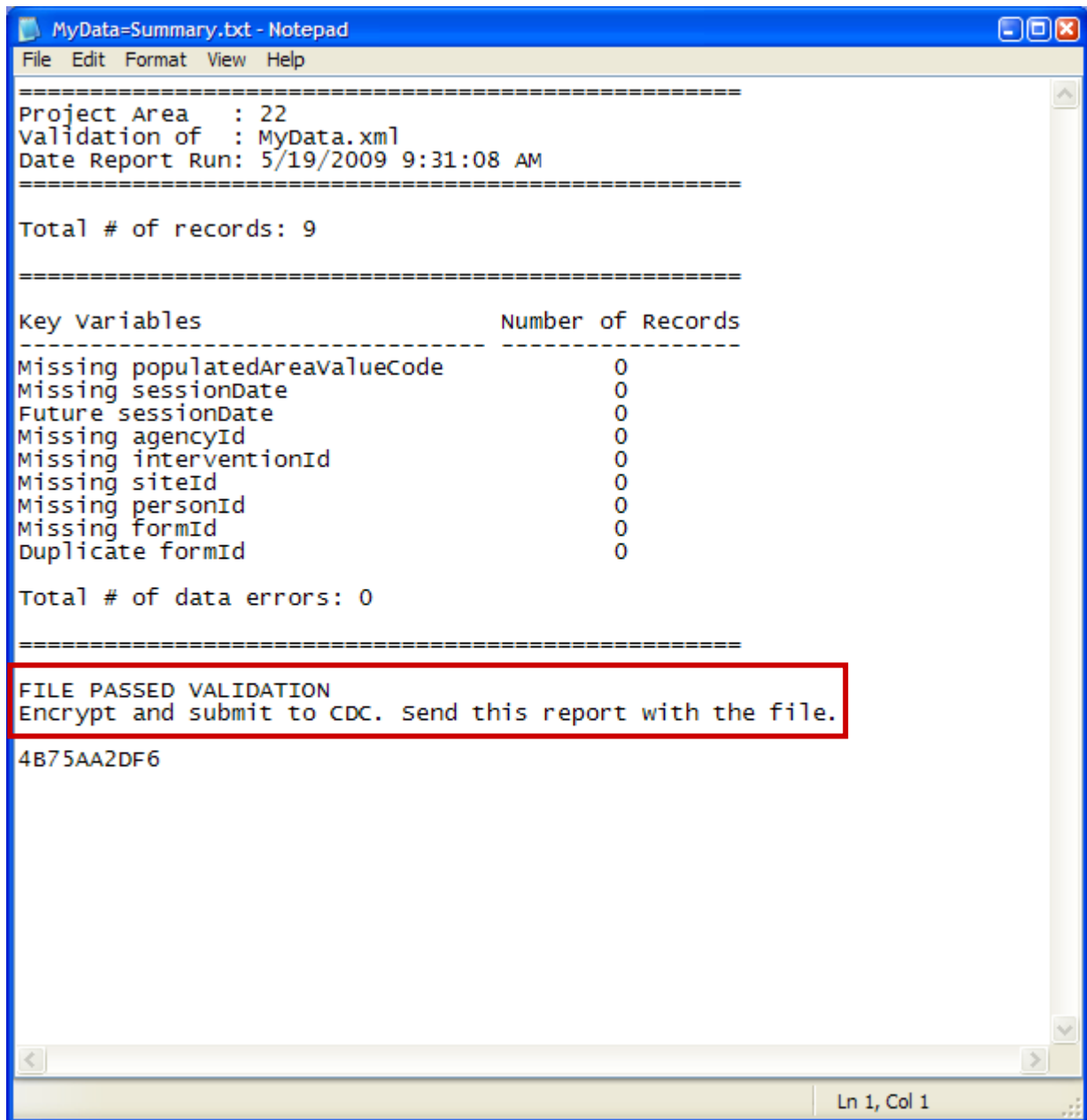
"Valid XML" message indicates the XML file has no syntax or data errors.

Note: since the program is running in "Report" mode, a summary report will be created.



Summary Report

When running in "Report" mode, a summary report is created if there are no syntax or data errors in the XML file. Following is a sample summary report.



```
MyData=Summary.txt - Notepad
File Edit Format View Help
=====
Project Area      : 22
Validation of     : MyData.xml
Date Report Run: 5/19/2009 9:31:08 AM
=====

Total # of records: 9

=====

Key Variables                Number of Records
-----
Missing populatedAreaValueCode    0
Missing sessionDate               0
Future sessionDate                0
Missing agencyId                  0
Missing interventionId             0
Missing siteId                    0
Missing personId                  0
Missing formId                    0
Duplicate formId                   0

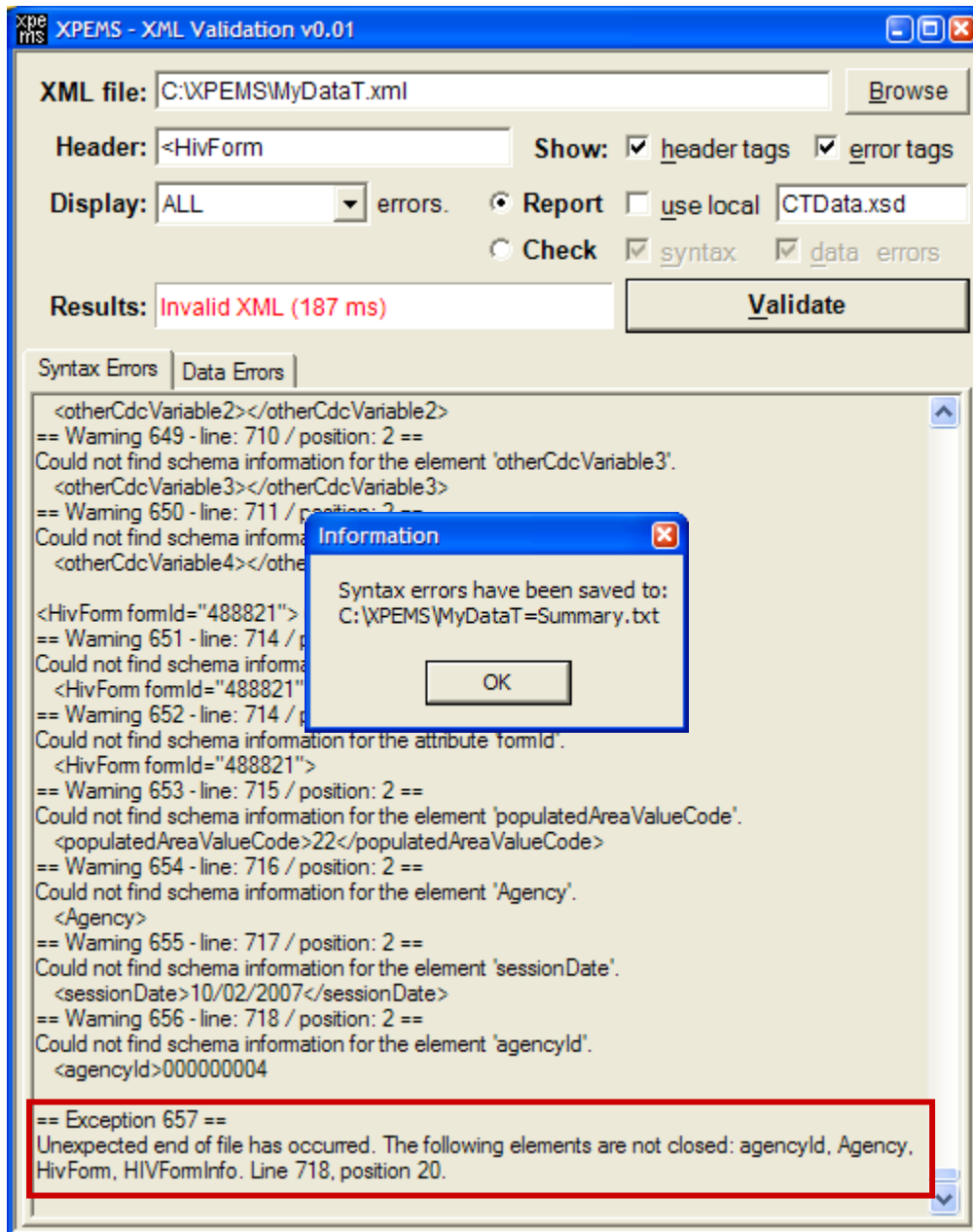
Total # of data errors: 0

=====
FILE PASSED VALIDATION
Encrypt and submit to CDC. Send this report with the file.
4B75AA2DF6

Ln 1, Col 1
```

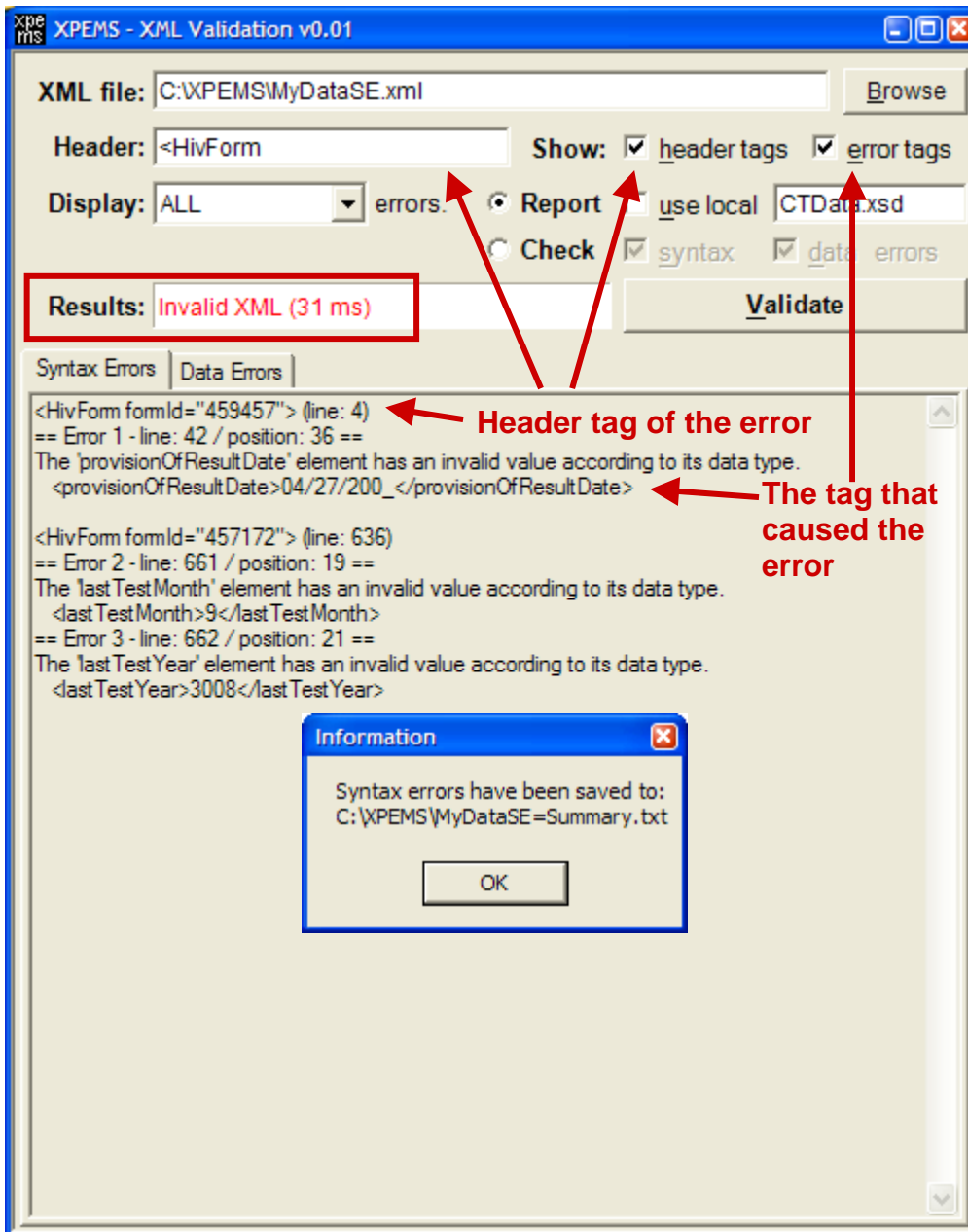

File Truncation Errors

When errors similar to highlighted is displayed at the end of syntax validation, the XML file is truncated.



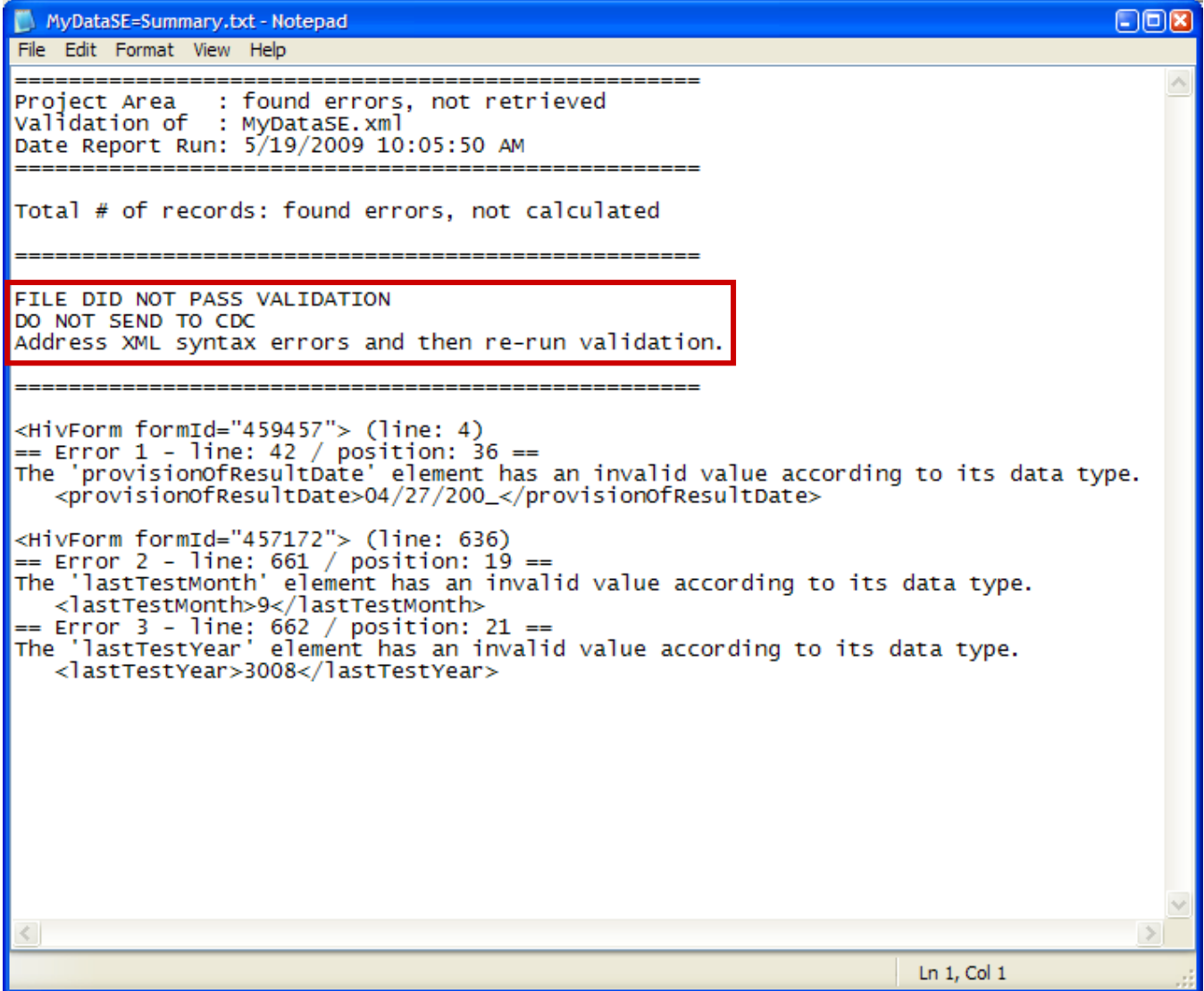
Syntax Errors (with XML Tag info)

For XML files with syntax errors, error message "Invalid XML" is displayed and a detailed list of errors is displayed in the "Syntax Errors" tab.



Syntax Errors Report (with XML Tag info)

When running in "Report" mode, a syntax errors report is created if there are syntax errors in the XML file. Following is a sample syntax errors report with tag info.



```
MyDataSE-Summary.txt - Notepad
File Edit Format View Help

=====
Project Area   : found errors, not retrieved
Validation of  : MyDataSE.xml
Date Report Run: 5/19/2009 10:05:50 AM
=====

Total # of records: found errors, not calculated
=====

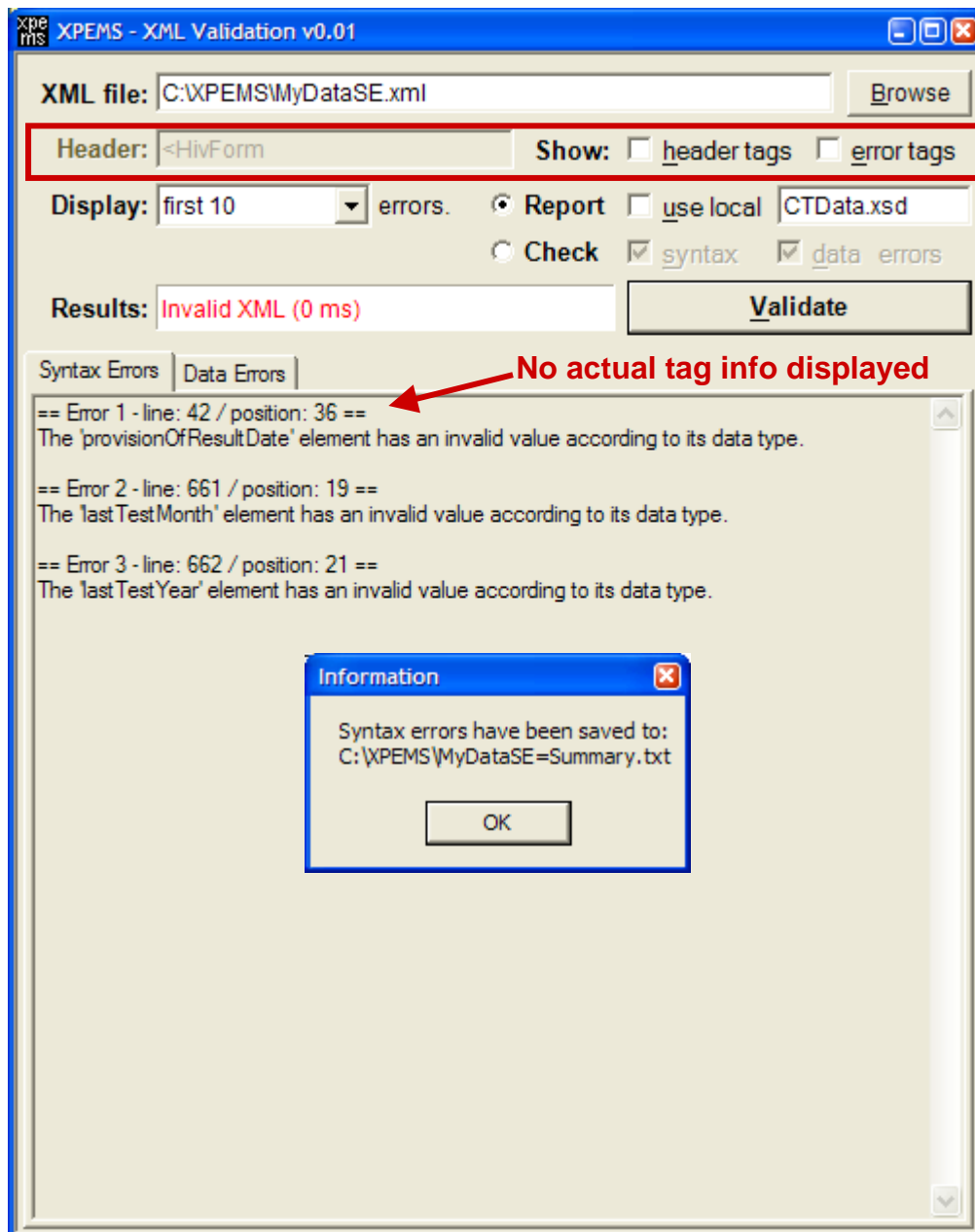
FILE DID NOT PASS VALIDATION
DO NOT SEND TO CDC
Address XML syntax errors and then re-run validation.
=====

<HivForm formId="459457"> (line: 4)
== Error 1 - line: 42 / position: 36 ==
The 'provisionOfResultDate' element has an invalid value according to its data type.
  <provisionOfResultDate>04/27/200_</provisionOfResultDate>

<HivForm formId="457172"> (line: 636)
== Error 2 - line: 661 / position: 19 ==
The 'lastTestMonth' element has an invalid value according to its data type.
  <lastTestMonth>9</lastTestMonth>
== Error 3 - line: 662 / position: 21 ==
The 'lastTestYear' element has an invalid value according to its data type.
  <lastTestYear>3008</lastTestYear>
```

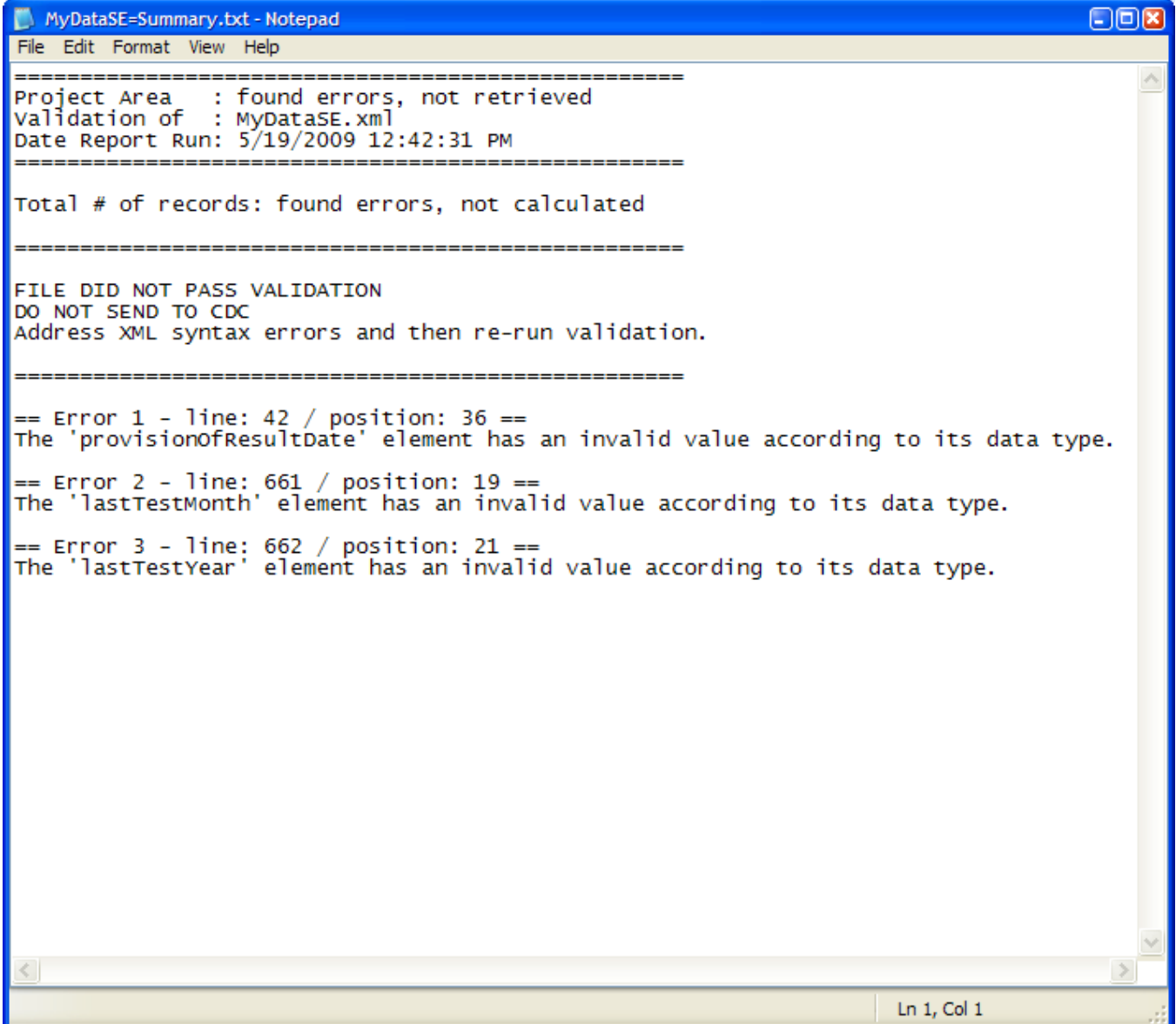
Syntax Errors (without XML Tag info)

If "Show header tags" and "Show error tags" are unchecked, syntax errors will not contain actual tag information that caused the errors.



Syntax Errors Report (without XML Tag info)

When running in "Report" mode, a syntax errors report is created if there are syntax errors in the XML file. Following is a sample syntax errors report without tag info.



The screenshot shows a Notepad window titled "MyDataSE-Summary.txt - Notepad". The menu bar includes "File", "Edit", "Format", "View", and "Help". The text content of the file is as follows:

```
=====
Project Area   : found errors, not retrieved
Validation of  : MyDataSE.xml
Date Report Run: 5/19/2009 12:42:31 PM
=====

Total # of records: found errors, not calculated
=====

FILE DID NOT PASS VALIDATION
DO NOT SEND TO CDC
Address XML syntax errors and then re-run validation.
=====

== Error 1 - line: 42 / position: 36 ==
The 'provisionOfResultDate' element has an invalid value according to its data type.

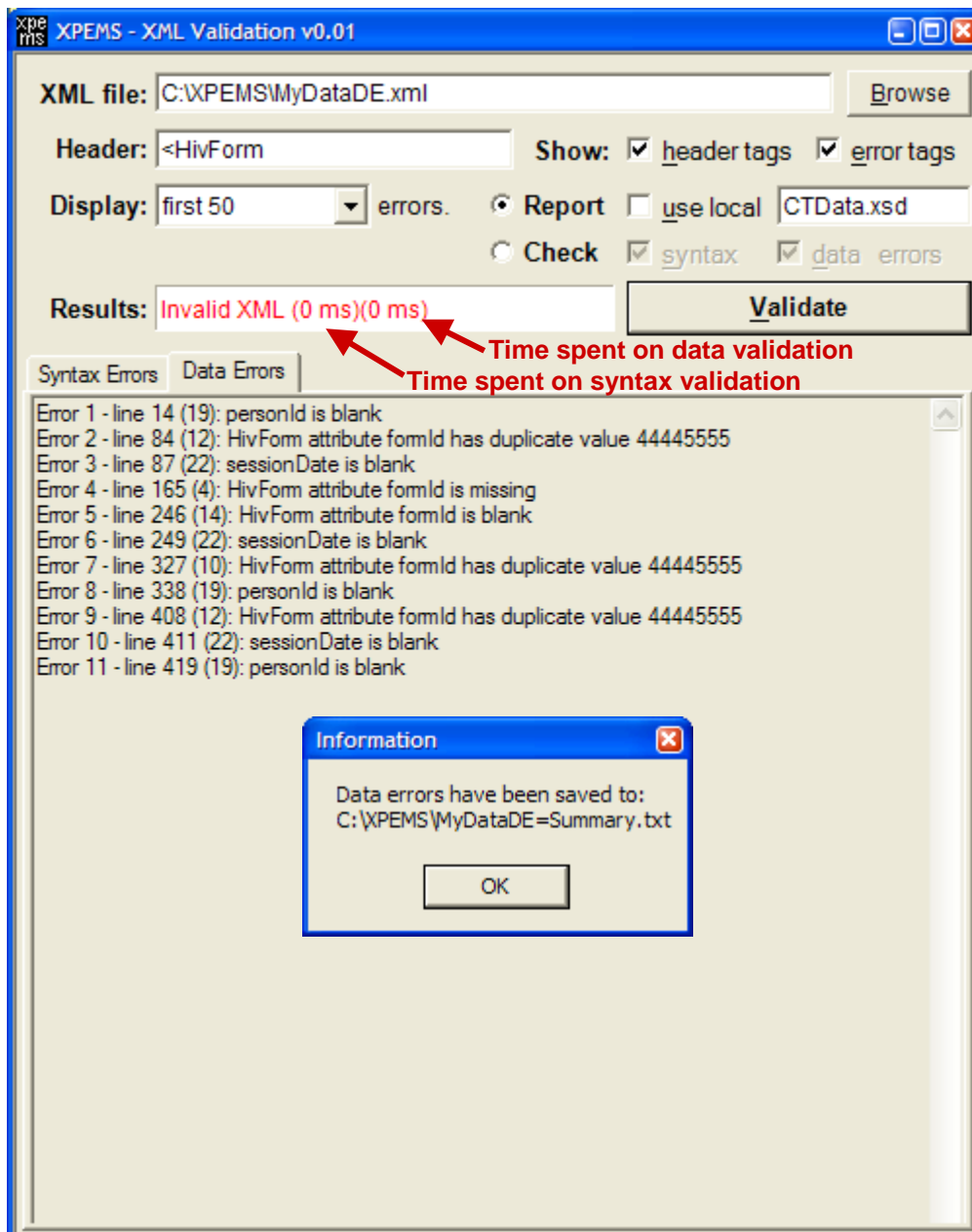
== Error 2 - line: 661 / position: 19 ==
The 'lastTestMonth' element has an invalid value according to its data type.

== Error 3 - line: 662 / position: 21 ==
The 'lastTestYear' element has an invalid value according to its data type.
```

The status bar at the bottom right indicates "Ln 1, Col 1".

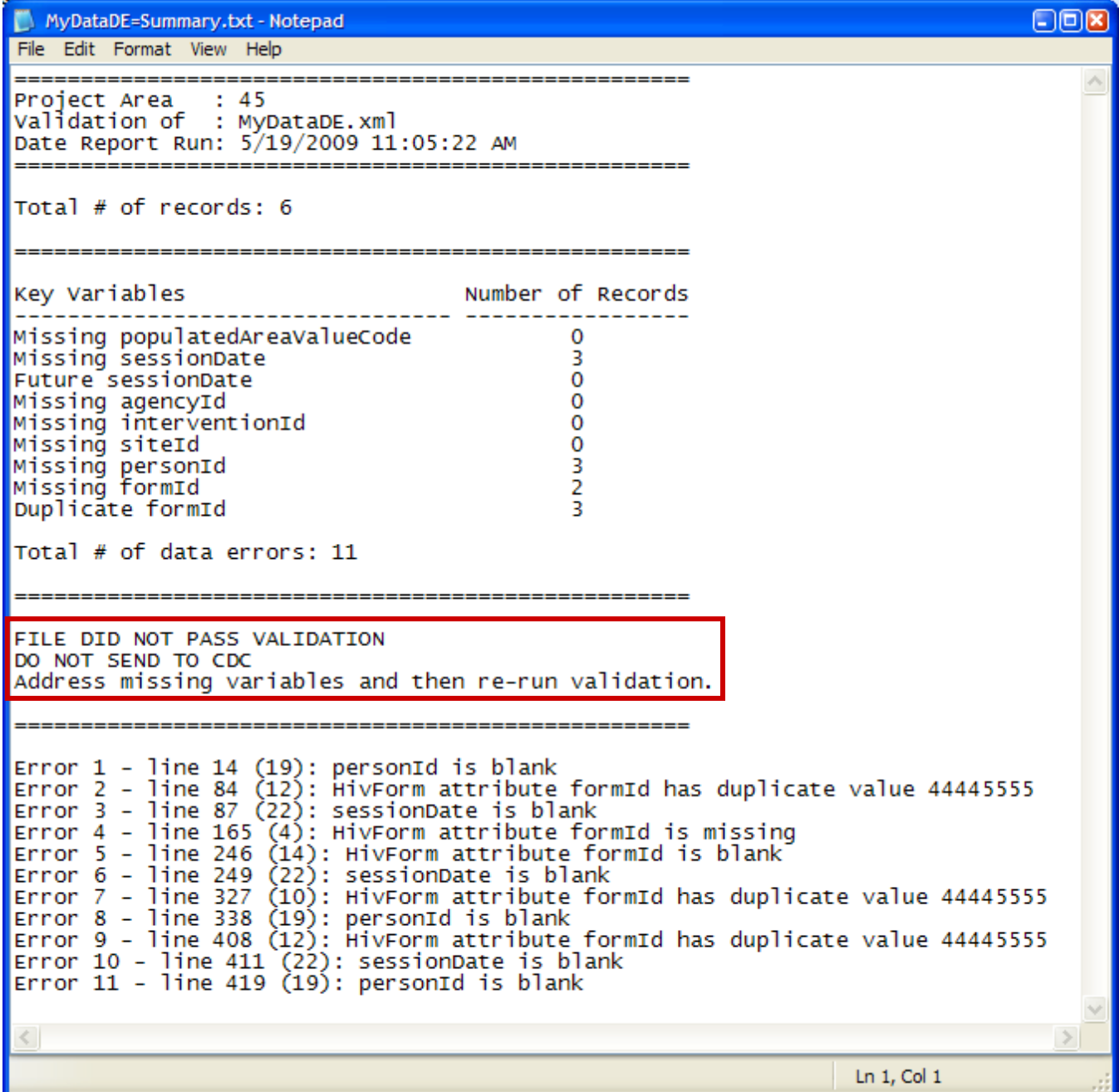
Data Errors

Data errors found in the XML file such as "missing/blank formId", "blank personId", or "blank sessionDate" are listed with corresponding line number and column position.



Data Errors Report

When running in "Report" mode, a data errors report is created if there are data errors in the XML file. Following is a sample data errors report.



```
MyDataDE=Summary.txt - Notepad
File Edit Format View Help
=====
Project Area   : 45
Validation of  : MyDataDE.xml
Date Report Run: 5/19/2009 11:05:22 AM
=====

Total # of records: 6

=====

Key variables                                Number of Records
-----
Missing populatedAreavalueCode              0
Missing sessionDate                        3
Future sessionDate                         0
Missing agencyId                           0
Missing interventionId                     0
Missing siteId                             0
Missing personId                           3
Missing formId                             2
Duplicate formId                           3

Total # of data errors: 11

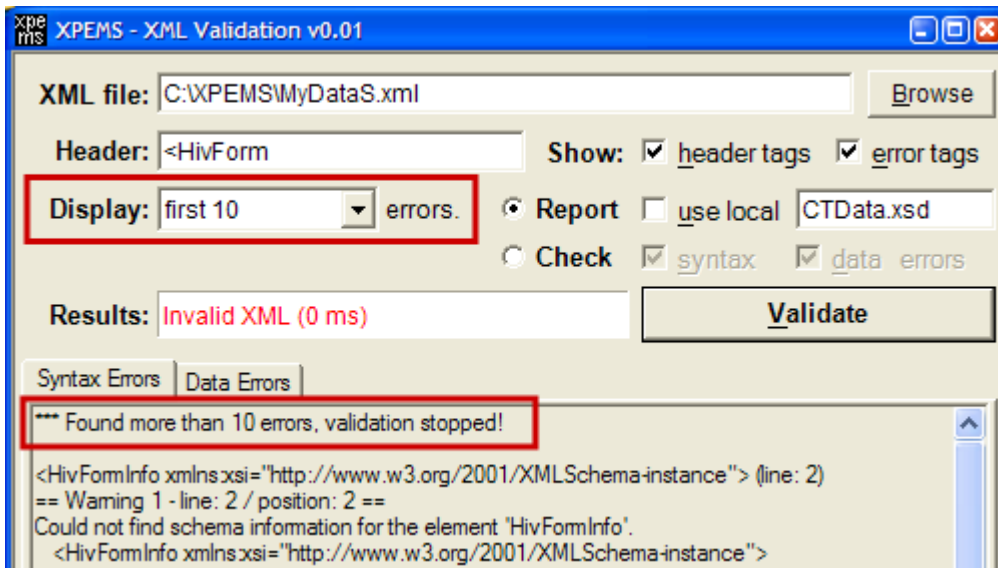
=====
FILE DID NOT PASS VALIDATION
DO NOT SEND TO CDC
Address missing variables and then re-run validation.
=====

Error 1 - line 14 (19): personId is blank
Error 2 - line 84 (12): HivForm attribute formId has duplicate value 44445555
Error 3 - line 87 (22): sessionDate is blank
Error 4 - line 165 (4): HivForm attribute formId is missing
Error 5 - line 246 (14): HivForm attribute formId is blank
Error 6 - line 249 (22): sessionDate is blank
Error 7 - line 327 (10): HivForm attribute formId has duplicate value 44445555
Error 8 - line 338 (19): personId is blank
Error 9 - line 408 (12): HivForm attribute formId has duplicate value 44445555
Error 10 - line 411 (22): sessionDate is blank
Error 11 - line 419 (19): personId is blank

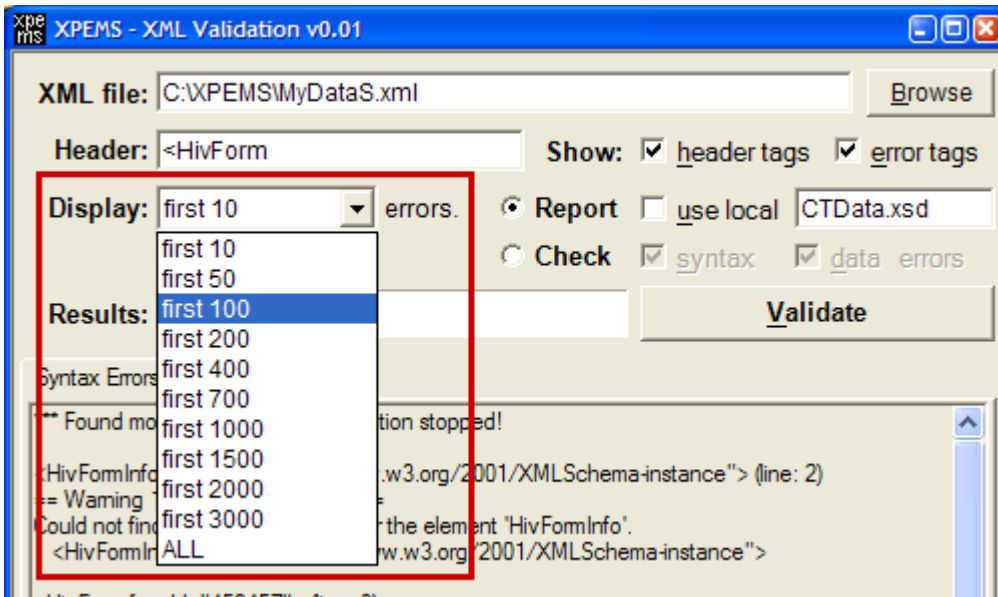
Ln 1, Col 1
```

Too Many Errors

If xpe.ms.exe found more errors than the number specified in "Display first xxx errors" dropdown, error message "Invalid XML" is displayed and a list of the first xxx errors is displayed in the list box.

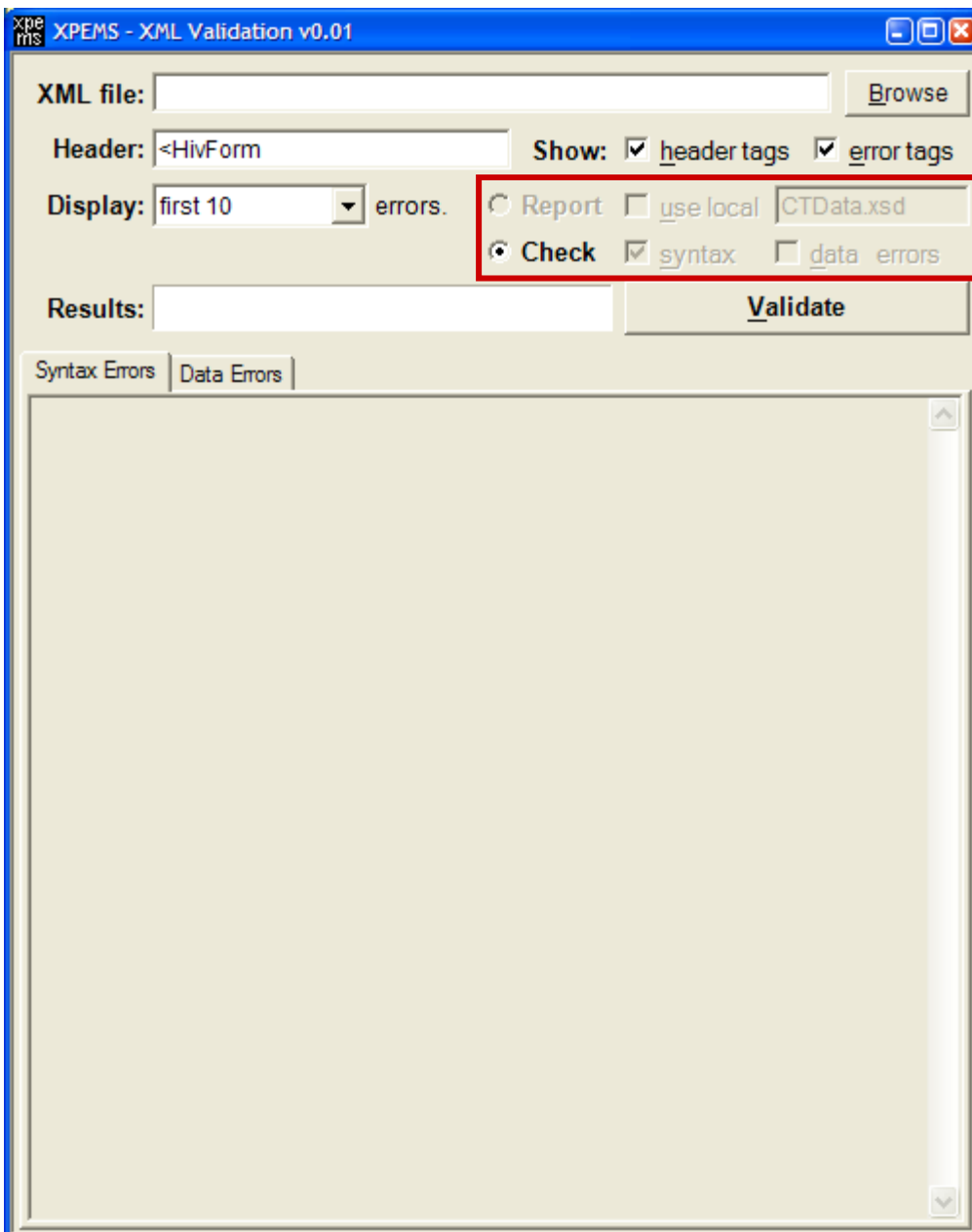
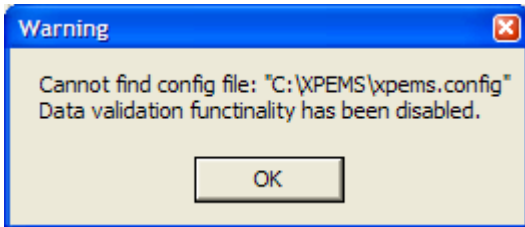


To see more errors, change the selection in "Display first xxx errors" dropdown.



Missing xpems.config File

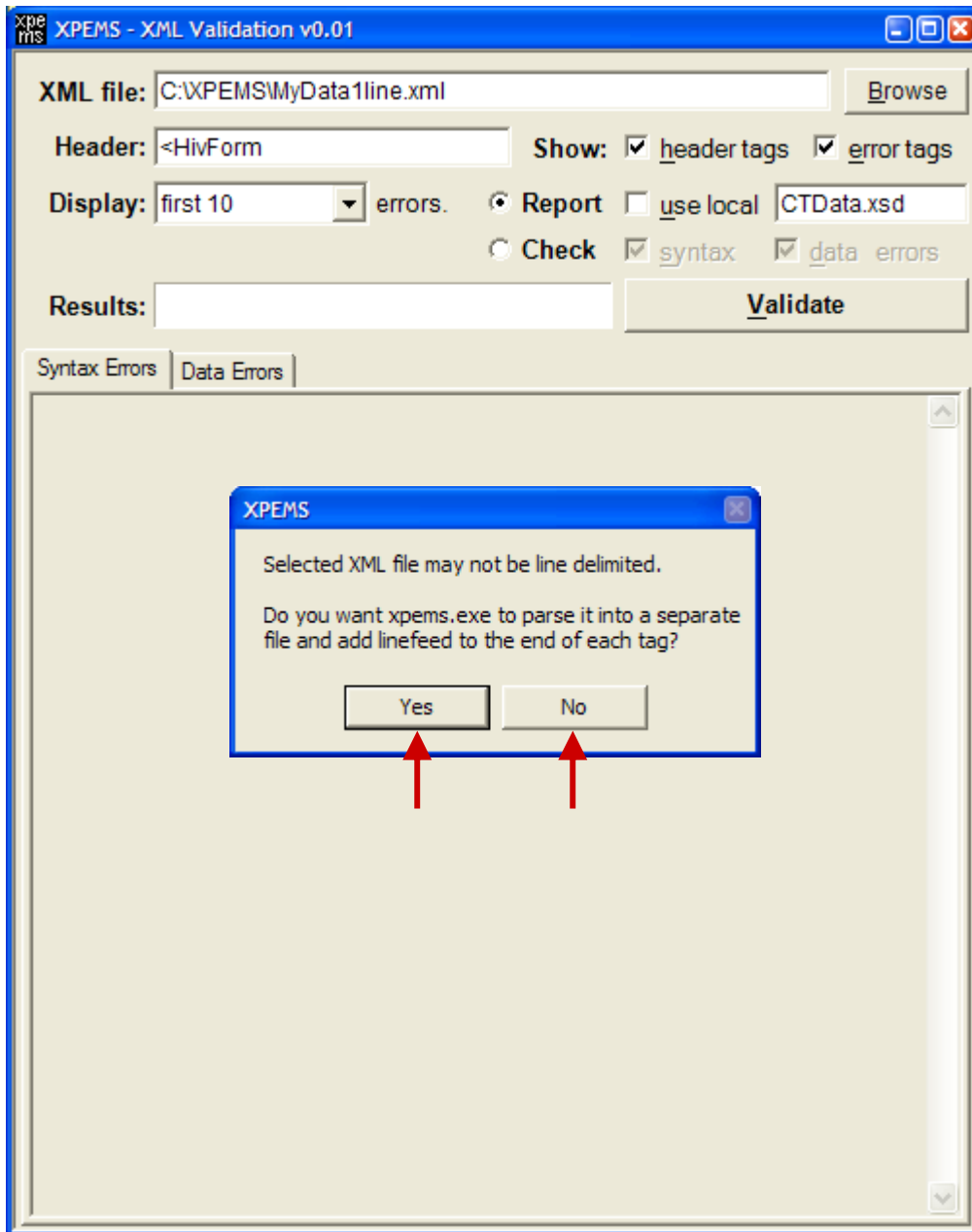
xpems.config and **xpems.exe** must be copied to the same folder. If the application cannot find xpems.config file, following warning message is displayed and the data validation functionality and "Report" mode are disabled.



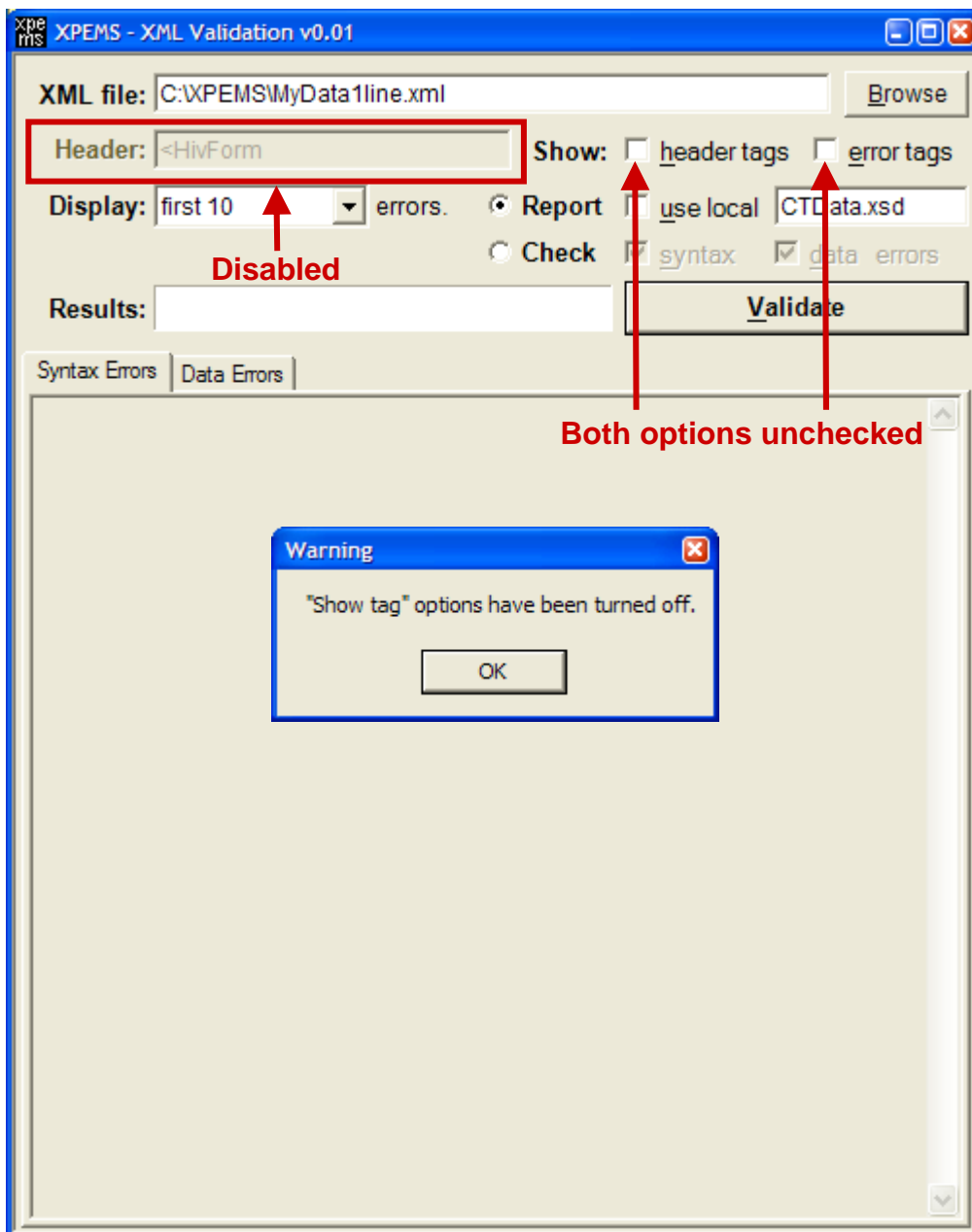
XML Parser (indenter/reformatter)

Xpems.exe has a built-in XML parser that can parse an XML file into indented, line-delimited, human-friendly format. For XML files that are "not line delimited" (multiple XML tags share the same line), the program prompts if the parser should be activated.

- Select "Yes" to parse the target XML file into a separate, human-friendly XML file
- Select "No" to continue the validation with current XML format – this option will uncheck both "Show header tags" and "Show error tags" options

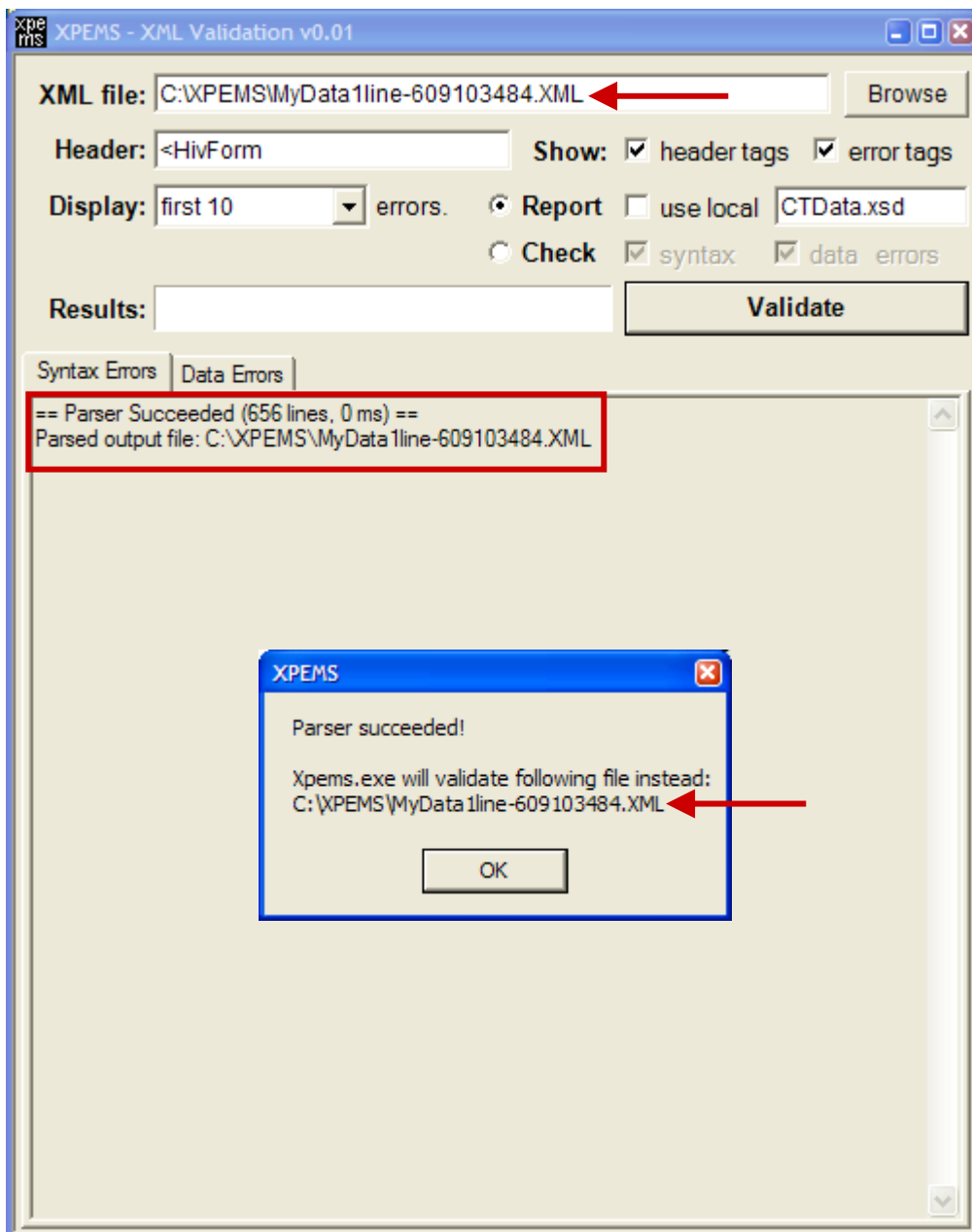


Both "Show header tags" and "Show error tags" options are unchecked if the parser was not activated.



If the parser is activated, it first creates a temporary file by appending a random number to the end of the target XML file name then parses and writes the contents of the target XML file into the temporary file in indented, line-delimited format.

If the parser succeeded, xpems.exe will validate the temporary file instead.



If the parser failed, xpems.exe displays encountered error and parsed output file name then unchecks both "Show header tags" and "Show error tags" options. In this case, xpems.exe will continue with the validation of the original XML file when the "OK" button is pressed.

